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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/664,241 | 09/18/2000 | Andreas Hajek | Hoeger-422 | 4110 |

7590 09/12/2002

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EXAMINER

EGWIM, KELECHI CHIDI

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 1713 | 8 |

DATE MAILED: 09/12/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

TP

| | | |
|------------------------------|------------------------|---------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/664,241 | HAJEK ET AL. |
| | Examiner | Art Unit |
| | Dr. Kelechi C. Egwim | 1713 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 18 June 2002.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 14-16 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-13 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's affirmation of the election of Group I in Paper No. 7 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

2. This application contains claims 14-16, drawn to a nonelected invention. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Claim Rejections - 35 USC § 102

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1-4 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Krieg et al. (EP 639539).

In page 5, ¶ 5, page 6 ¶ 2 to page 9 ¶ 1, page 11 ¶ 3 to page 12 ¶ 2 of the translation, Krieg et al. teach filled molding compositions comprising a poly(methyl methacrylate) syrup containing 30 to 80 percent of inorganic filler (FS), 1 to 15 percent by weight, based on the syrup, of PMMA having a molecular weight from about 10,000

to 400,000 (PM), 1 to 20 percent of a solid particulate polymer (PP) which has particles ranging in size from 0.13 to 0.15 mm (30 microns to about 150 microns), being optionally at least partially crosslinked, said solid particulate polymer (PP) being defined in DE 2135828 to Fink et al.

In the abstract of DE 2135828, Fink et al. teaches the solid particulate polymers to be elastomers, with glass transition temperatures below 35 °C.

Thus, the requirements for rejection under 35 U.S.C. 102(b) are met.

Claim Rejections - 35 USC § 103

5. Claims 5-7, 9, 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krieg et al. in combination with Hwa et al. (USPN 3,661,994).

Krieg et al., above, differs from the claimed invention in that the solid elastomer particulate are not defined as having a core/shell structure with an elastomer core and matrix compatible shell. However, it is known in the art to incorporate such core/shell elastomers into rigid plastic such as methacrylate, for the purpose of imparting improved impact strength onto the products through the elastomer whilst maintaining good adhesion between the rubber (elastomer) particles and the continuous matrix phase through the matrix compatible outer shell, such as taught by Hwa et al. (See col. 1, lines 28-30 and 65-72).

In col. 1, lines 24-30 and 64-72, col. 3, lines 15-22 and col. 4, lines 1-7, Hwa et al. teach that the rubber/elastomer particles used to reinforce rigid plastics such as poly(methyl methacrylate) can be improved by grafting the rubber particles with an outer

layer compatible with the rigid polymer matrix. Hwa et al. teach such elastomer particles comprising up to four layers, wherein at least one core layer comprises an elastomer layer and the outer layer is a matrix compatible layer from a monomer such as methyl methacrylate.

In col. 4, lines 8-19, Hwa et al. expresses the rubber content of the particles in terms of the rubber replaced (see figure 4), being preferable from 0.5 to 30% (about 15 to 60% of particle thickness is core/elastomer).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made, to use core/shell particles as taught in Hwa et al., as the particles (PP) in the poly(methyl methacrylate) composition of Krieg et al. in order to obtain the improvements taught by Hwa et al., motivated by a reasonable expectation of success.

6. Claims 5-10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krieg et al. in combination with Hofmann (USPN 4,180,529) or Henton et al. (WO 88/05450)

Krieg et al., above, differs from the claimed invention in that the solid elastomer particulate are not defined as having a core/shell structure with an elastomer core and matrix compatible shell. However, it is known in the art to incorporate such core/shell elastomers into rigid plastics such as poly(methyl methacrylate), for the purpose of imparting improved impact strength onto the products, whilst maintaining good adhesion between the elastomer particles and the continuous matrix phase and/or whilst reducing

the stress whitening of the products and maintaining good weatherability, such as taught by Hofmann (See col. 1, lines 19-25 and 42-52) or Henton et al. (See page 3, lines 4-26).

In col. 1, line 55 to col. 2, line 4, col. 2, lines 31-46, col. 3, lines 50-68 and col. 4, lines 5-7, Hofmann teaches elastomer (resilient) particles used to reinforce rigid plastics such as poly(methyl methacrylate), wherein the elastomer particles comprising up to four layers, wherein at least one core layer comprises an elastomer layer and the outer layer is a matrix compatible layer from a monomer such as methyl methacrylate. Hofmann teaches the outer layer of the particles to optionally be crosslinked and the core stages to comprise about 60 to 95 % of the elastomer particles.

In page 1 ¶ 1, page 3 ¶ 2, page 5 ¶ 2, page 6 ¶ 3 and page 7 ¶ 3, Henton et al. teach elastomer/rubber particles used to reinforce rigid plastics such as poly(methyl methacrylate), wherein the elastomer particles comprising at least one core elastomer layer and at least one the outer layer is a matrix compatible layer from a monomer such as methyl methacrylate. Henton et al. teach the outer layer to be at least partially crosslinked and the core stages to comprise from about 1 to 99 % of the elastomer particles.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made, to use the core/shell particles as taught in Hofmann or Henton et al. as the particles (PP) in the poly(methyl methacrylate) composition of Krieg et al. in order to obtain the advantages taught by Hofmann or Henton et al., motivated by a reasonable expectation of success.

7. Claims 5-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krieg et al. in combination with Alsmarraie et al. (USPN 5,087,662).

Krieg et al., above, differs from the claimed invention in that the solid elastomer particulate are not defined as having a core/shell structure with an organosiloxane elastomer core and matrix compatible shell. However, it is known in the art to incorporate such core/shell elastomers with an organosiloxane elastomer cores into thermoplastic compositions of rigid plastics, for the purpose of imparting improved impact strength onto the products, such as taught by Alsmarraie et al. (See col. 5, lines 10-14).

In col. 5, lines 10-14, col. 7, lines 12-31 and col. 12, lines 13-26, Alsmarraie et al. teach elastomer (resilient) particles used to reinforce thermoplastics, wherein the elastomer particles comprise a polyorganosiloxane elastomeric core and at least one outer layer is a matrix compatible layer from a monomer such as methyl methacrylate, grafted together with graftlinking (crosslinking) monomers and the core stage comprises about 5 to 95% of the elastomer particles.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made, to use the polyorganosiloxane/acrylate elastomeric core/shell particles of Alsmarraie et al. as the particles (PP) in the poly(methyl methacrylate) composition of Krieg et al. in order to obtain the impact strengthening advantages taught by Alsmarraie et al., motivated by a reasonable expectation of success.

Response to Arguments

8. Applicant's arguments filed 6/11/02 have been fully considered but they are not persuasive.
9. Regarding applicant's arguments against Krieg et al., as stated above, (see translation) Krieg et al. teach filled molding compositions comprising a poly(methyl methacrylate) syrup containing 30 to 80 percent of inorganic filler (FS), 1 to 15 percent by weight, based on the syrup, of PMMA having a molecular weight from about 10,000 to 400,000 (PM), 1 to 20 percent of a solid particulate polymer (PP) with has particles ranging a size from 30 microns to about 150 microns, which are optionally at least partially crosslinked. On page 12 ¶ 2 of the translation, Krieg et al. teach that "the production of polymer pearls (PP) of a suitable type is, for example, described in ... DE-A21 35 828" and DE-A21 35 828 teaches the solid particulate polymer/polymer pearls (PP) to be elastomeric particles. While applicant points out an example Krieg et al. outside the scope of the present claims, it is noted that the prior art teachings are not limited to the examples. Applicant invention is still taught, even if it's not exemplified by the prior art.
10. Regarding applicant's arguments against the incorporation of DE-A21 35 828 in Krieg et al., Krieg et al. teach that "the production of polymer pearls (PP) of a suitable type is ... described in ... DE-A21 35 828". Thus, the relevance of the polymer particles

of DE-A2135828 is not limited to their particles sizes, but to the polymer particles in their entirety.

11. Regarding the argument that Krieg et al. and DE-A21 35 828is not concerned with achieving improved resistance to scratching and abrasion, any properties of the present moulding composition would be inherent in the moulding composition of Krieg et al. as the molding composition itself is fully taught. *In re Fitzgerald et al* , 619 F.2d 67, 205 USPQ 594 (CCPA 1980). See MPEP § 2112 - § 2112.02.

12. In response to applicant's arguments against the references individually (i.e., Hwa et al., Hofmann or Henton et al.) one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Hwa et al., Hofmann or Henton et al. are used, in combination with Krieg et al., to show the obviousness of incorporating such core/shell elastomers into rigid plastic such as poly(methyl methacrylate), for the purpose of imparting improved impact strength onto the products through the elastomer core, whilst maintaining good adhesion between the rubber (elastomer) particles and the continuous matrix phase through the matrix compatible outer shell, thereby reducing the stress whitening of the products and maintaining good weatherability (See col. 1, lines 28-30 and 65-72 in Hwa et al., col. 1, lines 19-25 and 42-52 in Hofmann, or page 3, lines 4-26 in Henton et al).

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kelechi C. Egwim whose telephone number is (703) 306-5701. The examiner can normally be reached on M-T (7:30-6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (703) 308-2450. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Art Unit: 1713

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0661.

KCE
September 9, 2002

DAVID W. WU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700